

## CLAIMS

What is claimed is:

1           1.     A method for product fulfillment in an automated manufacturing system, the  
2                     method  
3     comprising the steps of:

- 4           a) obtaining requirements for a product from a customer;  
5           b) creating a plan from the requirements using a descriptive language; and  
6           c) conveying the plan to the automated manufacturing system, wherein the plan is used to  
7     manufacture the product satisfying the requirements.

8           2.     The method of claim 1, wherein the descriptive language is hierarchical and  
9     object oriented.

1           3.     The method of claim 2, wherein the descriptive language describes the product by  
2     a plurality of objects, each object of the plurality of objects having an attribute, and the attribute  
3     being assigned a value.

4. The method of claim 3, wherein each object identifies a component in the product, wherein the component can be either a physical part or a logical part.

5. The method of claim 4, wherein the descriptive language is capable of describing a hierarchical relationship between objects.

6. The method of claim 5, wherein the descriptive language is capable of describing a mechanical and electrical connection between objects.

7. The method of claim 1, wherein the plan integrates the requirements with population rules that determine a sequence for manufacturing the product, and configuration rules that determine proper configuration settings.

8. The method of claim 1, wherein the automated manufacturing system includes a plurality of processes that use the plan to produce the product, the plurality of processes being software based.

9. The method of claim 8, wherein the conveying step c) further comprises the step of: c1) providing a portion of the plan to a process of the plurality of processes, the portion being relevant to the process, thereby reducing the amount of information conveyed throughout the automated manufacturing system.

10. The method of claim 8, wherein one process of the plurality of processes is an assembly process, the assembly process including the step of generating assembly instructions from the plan.

11. The method of claim 10, wherein the assembly instructions are provided in a pictorial form such that an assembly worker can view the product assembled.

12. The method of claim 1, wherein obtaining step (a) further includes the step of entering the requirements through a user interface, the user interface being a web based front end ordering system.

13. The method of claim 1, wherein the plan is created automatically.

14. The method of claim 1 further comprising the step of (e) storing the plan for future repairs and maintenance.

1           15.       A method for product fulfillment in a configure-to-order automated  
2 manufacturing system, the method comprising the steps of:  
3 a) obtaining requirements for a product from a customer through a user interface;  
4 b) creating a plan from the requirements using a descriptive language, the descriptive language  
5 being hierarchical and object oriented; and  
6 c) conveying the plan to the automated manufacturing system, wherein the plan is used to  
7 manufacture the product satisfying the requirements.

16.       The method of claim 15, wherein the descriptive language describes the  
product by a plurality of objects, each object of the plurality of objects having an attribute, and the  
attribute being assigned a value.

17.       The method of claim 16, wherein each object identifies a component in the  
customized product, wherein the component can be either a physical part or a logical part.

18.       The method of claim 17, wherein the descriptive language is capable of describing a  
hierarchical relationship between objects.

19. The method of claim 18, wherein the descriptive language is capable of describing a mechanical and electrical connection between objects.

20. The method of claim 15, wherein the automated manufacturing system includes a plurality of processes that use the plan to produce the product, the plurality of processes being software based.

21. The method of claim 20, wherein the conveying step c) further comprises the step of:  
c1) providing a portion of the plan to a process of the plurality of processes, the portion being relevant to the process, thereby reducing the amount of information conveyed throughout the automated manufacturing system.

22. The method of claim 15, wherein obtaining step (a) further includes the step of entering the requirements through a user interface, the user interface being a web based front end ordering system.

23. The method of claim 15 further comprising the step of (e) storing the plan for future repairs and maintenance.

1           24.     A method for product fulfillment in a configure-to-order computer manufacturing  
2     system, the method comprising the steps of:  
3     a) obtaining requirements for a computer product from a customer through a user interface;  
4     b) automatically creating a plan from the requirements using a descriptive language; and  
5     c) conveying the plan to the automated manufacturing system, wherein the plan is used to  
6     manufacture the computer product satisfying the requirements.

1           25.     The method of claim 24, wherein the descriptive language is hierarchical and object  
2     oriented.

1           26.     The method of claim 25, wherein the descriptive language describes the computer  
2     by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute  
3     being assigned a value.

1           27.     The method of claim 26, wherein each object identifies a component in the  
2     customized computer, wherein the component can be either a physical part or a logical part.

1           28.     The method of claim 24, wherein requirements include hardware parts, software  
2     parts, service parts, and personalized data.

29. The method of claim 28, wherein the personalized data includes an IP address, a computer name, and slot preferences.

30. The method of claim 29, wherein the obtaining step (a) further includes the steps of:

- a1) entering a plurality of part numbers, each part number corresponding to a hardware part, a software part, or a service part; and
- a2) entering the personalized data.

31. The method of claim 30, wherein the plurality of part numbers and personalized data is automatically converted into the descriptive language to form the plan.

32. The method of claim 31, wherein the automated manufacturing system includes a plurality of processes that use the plan to produce the computer product, the plurality of processes being software based.

33. The method of claim 32, wherein one process of the plurality of processes is an assembly process, the assembly process including the step of generating assembly instructions from the plan.

34. The method of claim 33, wherein the assembly instructions are provided in a pictorial form such that an assembly worker can view the computer product assembled, including the slot preferences for the hardware parts.

35. The method of claim 24, wherein the user interface is a web based front end ordering system.

36. The method of claim 24 further comprising the step of (e) storing the plan for future repairs and maintenance.

37. A configure-to-order automated manufacturing system, comprising:  
a user interface for obtaining requirements for a product from a customer;  
an order processing system for automatically creating a plan from the requirements using a descriptive language; and  
a plurality of processes for manufacturing the product from the plan.

38. The system of claim 37, wherein the descriptive language is hierarchical and object oriented.

39. The system of claim 38, wherein the descriptive language describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.



1           40.     The system of claim 39, wherein each object identifies a component in the product,  
2     and wherein the component can be either a physical part or a logical part.

1           41.     The system of claim 40, wherein the descriptive language is capable of describing a  
2     hierarchical relationship between objects.

1           42.     The system of claim 41, wherein the descriptive language is capable of describing a  
2     mechanical and electrical connection between objects.

1           43.     The system of claim 37, wherein each process of the plurality of processes is  
2     provided a portion of the plan, the portion being relevant to the process, thereby reducing the  
3     amount of data conveyed throughout the manufacturing system.

1           44.     The system of claim 43, wherein one process of the plurality of processes is an  
2     assembly process that generates assembly instructions from the plan.

1           45.     The system of claim 44, wherein the assembly instructions are provided in a  
2     pictorial form such that an assembly worker can view the product assembled.

1           46.     The system of claim 37, wherein the user interface is a web based front end  
2     ordering system.

47. The system of claim 37 further comprising a database for storing the plan for future repairs and maintenance.

48. A computer readable medium containing program instructions for product fulfillment in a configure-to-order automated manufacturing system, the program instructions for:

- a) obtaining requirements for a product from a customer through a user interface;
- b) creating a plan from the requirements using a descriptive language;
- c) conveying the plan to the automated manufacturing system, wherein the plan is used to manufacture the product satisfying the requirements; and
- (e) storing the plan for future repairs and maintenance.

49. The computer readable medium of claim 48, wherein the descriptive language is hierarchical and object oriented, and describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

50. The computer readable medium of claim 49, wherein each object identifies a component in the customized product, and wherein the component can be either a physical part or a logical part.

1           51.     The computer readable medium of claim 48, wherein the automated manufacturing  
2     system includes a plurality of processes that use the plan to produce the product, the plurality of  
3     processes being software based.

1           52.     The computer readable medium of claim 51, wherein the conveying instruction (c)  
2     further comprises the instruction of:  
3     c1) providing a portion of the plan to each process of the plurality of processes, the portion being  
4     relevant to the process, thereby reducing the amount of information conveyed throughout the  
5     automated manufacturing system.

1           53.     The computer readable medium of claim 51, wherein one process of the plurality of  
2     processes is an assembly process, the assembly process including the instruction of generating  
3     assembly instructions from the plan.

1           54.     The computer readable medium of claim 53, wherein the assembly instructions are  
2     provided in a pictorial form such that an assembly worker can view the product assembled.

1           55.     A method for describing a product for manufacture, comprising the steps of:  
2     a) providing a descriptive language, the descriptive language being hierarchical and object oriented;  
3     and  
4     b) using the descriptive language to create a plan that describes the product.

56. The method of claim 55, wherein the descriptive language describes the product by a plurality of objects, each object of the plurality of objects having an attribute, and the attribute being assigned a value.

57. The method of claim 56, wherein each object identifies a component in the product, wherein the component can be either a physical part or a logical part.

58. The method of claim 57, wherein the descriptive language is capable of describing a hierarchical relationship between objects.

59. The method of claim 58, wherein the descriptive language is capable of describing a mechanical and electrical connection between objects.